

Groundwater Management— Progress in California?

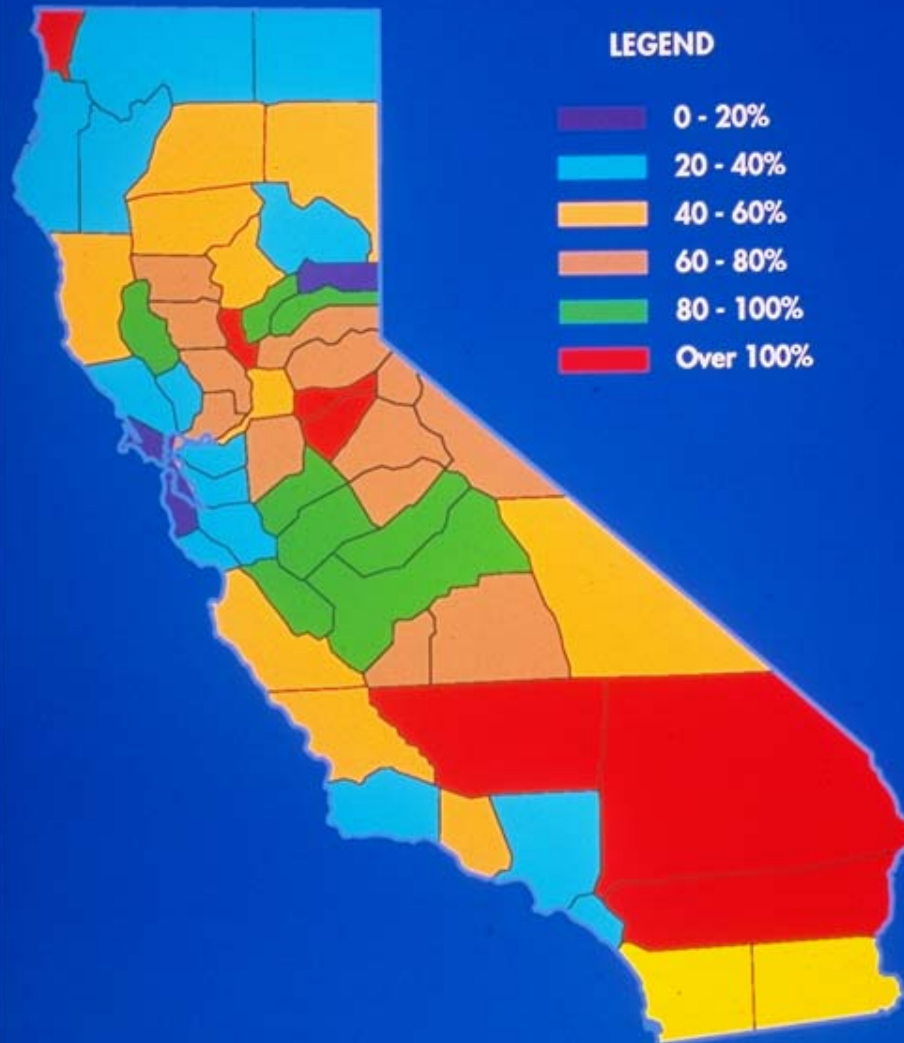
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Population growth

- 1995 population—32,000,000
- 2020 population—estimated to reach 48,000,000 persons
- This increase of 16,000,000 persons will add to the water demand

PROJECTED GROWTH RATES BY COUNTY, 1995 TO 2020



CALIFORNIA GEOMORPHIC PROVINCES



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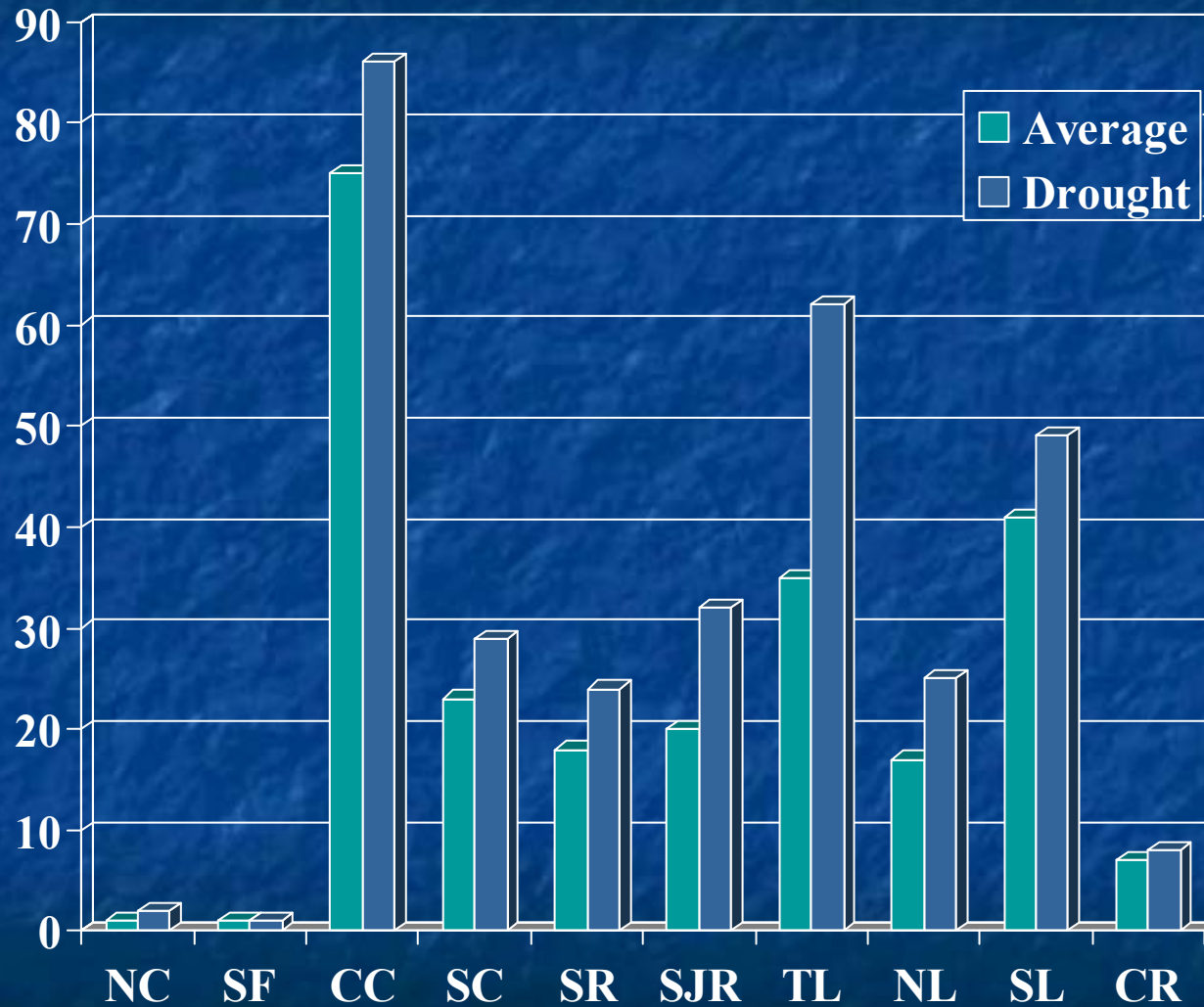
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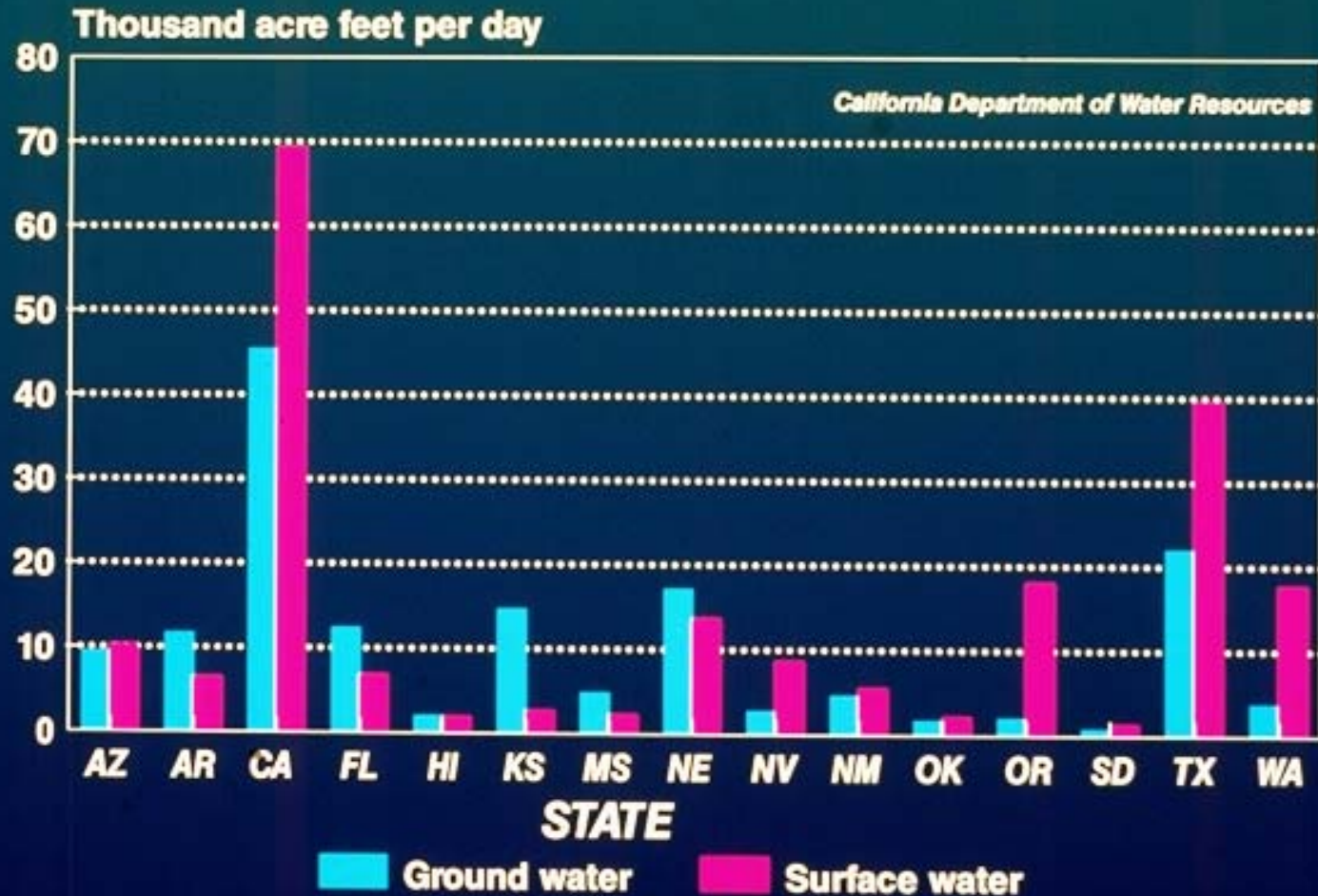
HYDROLOGIC REGIONS OF CALIFORNIA



Groundwater as a % of total supply, 1995



GROUND WATER AND SURFACE WATER USE



Data from U.S. Geological Survey

Sources of 'new' water

- Recycled water
- Desalination
 - Seawater
 - Brackish groundwater
- Transfer from agricultural to urban use
- Conservation
- More effective management
- Conjunctive management
- Water marketing

California water law

- Surface water governed by the Water Code
- Groundwater governed by court decisions starting in the late 1800s

California water law

- Water Code requires permits to divert surface water for beneficial use
 - including 'subterranean streams flowing in known and definite channels'
- Overlying landowners have a right to pump as much groundwater as they can put to beneficial use
- There is no state law for managing groundwater in California

California groundwater management is a local responsibility

- Overlying rights
- Local agency
 - Statutory authority
 - Specially legislated districts
 - AB 3030
- Adjudicated basins
- City and county ordinances

Overlying rights

- Every landowner has a right to use the groundwater correlative with the right of every other landowner in the basin
- The amount of each correlative right is not established unless the basin is adjudicated, or some other binding management plan is agreed to

Local agencies

- California statutes identify 22 types of local agencies with varying statutory authority to manage surface water
- Some of these agencies have statutory authority to manage groundwater
- Most have not done so

Types of water service agencies

- Community Services District (CSD)
- Flood Control & Water Conservation District
- Harbor and Port District
- Municipal Improvement District
- Water Maintenance District
- Reclamation District
- Recreation and Park District
- County Sanitation District
- County Service Area
- Sewer and Sewer Maintenance
- Municipal Utility District
- Public Utility District

12 special agencies

- Water management agencies created by special legislation are authorized to enact ordinances to limit or regulate extraction
- Decisions are made by a board of directors

Water Code amendment—AB 3030

- 1992 amendment provided for local agencies to develop groundwater management plans
- Provides revenue raising authority
- Requires rules and regulations

AB 3030 components

- Saline water intrusion
- Wellhead protection
- Control contaminated groundwater
- Well destruction
- Mitigate overdraft
- Recharge gw extracted by producers
- Monitor gw levels
- Conjunctive use
- Well construction policies
- Role in cleanup, recharge, storage, and recycling projects
- Relationships with state and fed. agencies
- Review land use plans for contamination threat

The results

- Over 200 agencies adopted groundwater management plans under this statute
- Over 60 agencies adopted plans under other statutory authority

How good are the results?

- After the first plans were adopted, people asked, "Are the plans effective?"
- Most were merely statements of the status quo
- A few were plans that attempted to manage groundwater more efficiently

Adjudicated basins

- 19 adjudicated basins
- The court determines
 - Who can extract groundwater
 - How much they can extract
 - Who will be the Watermaster to enforce the court's decision

City and County ordinances to manage groundwater

- Under the power to protect their citizens, cities and counties can adopt ordinances to manage groundwater
- The extent of this power is presently uncertain
- 28 counties have adopted ordinances

Ordinances

- Many require proof that an export project will not cause
 - Depletion of groundwater
 - Degradation of groundwater quality
 - Subsidence
- But they don't require a management plan

California's 3 reservoirs

- Snow pack
- Dams
- Groundwater basins





What is a good plan?

- There is no definition of a good groundwater management plan and program
- People agreed that there should be some criteria
- DWR recommended that the state develop suitable guidelines & an ordinance

1999 legislative mandate required DWR to

- Review basin boundaries
- Review hydrogeologic units
 - Yield data, water budgets
 - Well production, water quality, monitoring
- Publish water budgets on the internet
- Develop model gw mgmt ordinance
- Develop guidelines for evaluating groundwater management plans

SB 1938 (2002)

- Requires local agencies to include certain components in their groundwater management plans if they want to receive funds administered by DWR for groundwater projects
 - Public participation procedures
 - Plan for coordination with other agencies in the basin
 - Map of the basin and the agencies in the basin
 - Management objectives
 - Monitoring for gw levels, quality, inelastic land subsidence and surface water flow and quality

Coordination with water agencies

- SB 1938 had already become law
- The water industry wanted to be a part of developing additional management plan components
- DWR worked with a committee of the Association of California Water Agencies (ACWA) to develop additional management components

Recommended management components

- Citizens advisory committee
- Describe the area
 - Define aquifer characteristics
 - Describe historical data
 - Define a water budget
- Describe how the MOs will provide a sustainable supply of water
- Develop a map showing monitoring locations for surface water & groundwater; summarize the data
- Produce periodic reports
- Re-evaluate the plan periodically

Public participation—1*

- Describe the manner in which interested parties may participate in developing the groundwater management plan
 - May include a technical advisory committee
 - Water Code §10753.4 (b)
- * Required component to receive funding

Coordination with other agencies— 2* & 11

- Develop a plan that enables the local agency to work cooperatively with other public entities whose service area overlies the groundwater basin
- Includes any local public agency that provides water service to all or a portion of its service area
- WC §§10753.7 (a)(2) & 10752 (g)

Map showing the boundaries—3*

- Provide a map showing the groundwater basin, defined by DWR Bulletin 118
- Show boundaries of all local agencies that overlie the same basin
- WC §10753.7 (a)(3)

Management objectives—6*

- Establish management objectives for the groundwater basin subject to the plan
- MOs define **unacceptable** groundwater declines, changes in water quality, and inelastic land surface subsidence
- WC § 10753.7 (a)(1)

Monitoring—7* & 9*

- Groundwater levels, groundwater quality, inelastic land surface subsidence, and changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater pumping
- Capable of tracking changes in conditions for the purpose of meeting MOs
- WC §§ 10753.7 (a)(1) & (4)

Citizens advisory committee--4

- Interested parties within the plan area that will help guide development and implementation of the plan
- Provide a forum for resolution of controversial issues

Description of the area--5

- Describe the area to be managed
 - Aquifer characteristics
 - Summary of historical data
 - Issues of concern
 - Water budget showing demand and supply

Sustainable water supply--8

- Describe how meeting the MOs will contribute to a more reliable supply for long-term beneficial uses of groundwater in the plan area
- Describe current or planned management actions to achieve MOs

Monitoring sites—10

- Prepare a map showing sites monitoring
 - Groundwater levels
 - Groundwater quality
 - Subsidence
 - Stream flow
- Describe monitoring frequency
- Well depths and interval monitored

Periodic reports--12

- Prepare periodic reports summarizing groundwater conditions and management activities
 - Monitoring results and trends
 - Management actions
 - Are MOs being met?
 - Proposed actions
 - Changes, including changes in MOs
 - Coordination with other water and land use agencies

Re-evaluate the plan--13

- Re-evaluate the plan periodically

Hard rock areas--14

- Should use the same components while using hydrologic and geologic principles appropriate to such areas
- WC §10753.7 (a)(5)

Goal of an ordinance or a groundwater management plan

- Whether by ordinance or by groundwater management plan, the result should be the same
- Good groundwater management that fits local political, institutional, legal and technical conditions and provides a sustainable water supply

Conclusions

- Most water agencies believe they have done a good job with AB 3030; others disagree
- AB 3030 (1992) started many people thinking about managing groundwater
- Proof--Some agencies' annual reports demonstrate good management that was not part of their original plan

The next steps will improve management

- Required components (SB 1938, 2002)
- Recommended components of groundwater management plans
- Model groundwater management ordinance

New developments and water supply

- Recent legislation requires developers and water agencies to prove they have a water supply adequate for their project
- If groundwater is involved, the right to use that groundwater, and the long-term availability of that groundwater must be substantiated

Finally

- It may seem that little progress toward better groundwater management has been made, **but**
- Given California's political, institutional, and legal realities, the truth is that we have made real progress
- But there is more to do